

Bureau of Infectious Disease and Laboratory Sciences

Hepatitis B Virus Infection

2016 Surveillance Report

Bureau of Infectious Disease and Laboratory Sciences

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Requests for additional data

<http://www.mass.gov/eohhs/gov/departments/dph/programs/id/isis/surveillance-data-request.ht ml>

Acknowledgments

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**Massachusetts Department of Public Health Bureau of
Infectious Disease and Laboratory Sciences
Division of Epidemiology and Immunization**

Hepatitis B Virus (HBV) Infection Data Summary 2007-2015

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Case classification: Chronic HBV

Confirmed:

- IgM antibodies to hepatitis B core antigen (IgM anti-HBc) negative AND a positive result on one of the following tests: hepatitis B surface antigen (HBsAg), hepatitis B e antigen (HBeAg), or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing), OR
- HBsAg positive or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing), or HBeAg positive two times at least 6 months apart (Any combination of these tests performed 6 months apart is acceptable.)

Probable:

A case with a single HBsAg positive or HBV DNA positive (including qualitative, quantitative and genotype testing), or HBeAg positive lab result when no IgM anti-HBc results are available

Case classification: Acute HBV

Clinical Presentation: An acute illness with a discrete onset of symptoms consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain) **and** either a) jaundice or b) elevated serum alanine aminotransferase levels > 100 IU/L

Confirmed:

Clinically compatible case* not known to have chronic hepatitis B and

1. HBsAg positive, AND
2. IgM antibody to hepatitis B core antigen (IgM anti-HBc) positive, if done

* A documented negative hepatitis B surface antigen (HBsAg) laboratory test result within 6 months prior to a positive test (either HBsAg, Hepatitis B “e” antigen (HBeAg), or hepatitis B virus nucleic acid testing (HBV NAT) including genotype) result does NOT require an acute clinical presentation to meet the surveillance case definition.

Suspect:

Positive IgM antibody to hepatitis B core antigen (IgM anti-HBc) that does not meet the clinical definition

Note that confirming a chronic HBV case can involve a significant time delay because of the requirement for two tests at least 6 months apart. Thus, it is expected that cases in the most recent year would be more likely to be classified as “probable.”

The year into which a case is categorized is based upon the case’s “Event Date”, which can be calculated from the following case characteristics, in decreasing order of specificity, dependent on availability of information: symptom onset date, specimen collection date, diagnosis date, or case creation date.

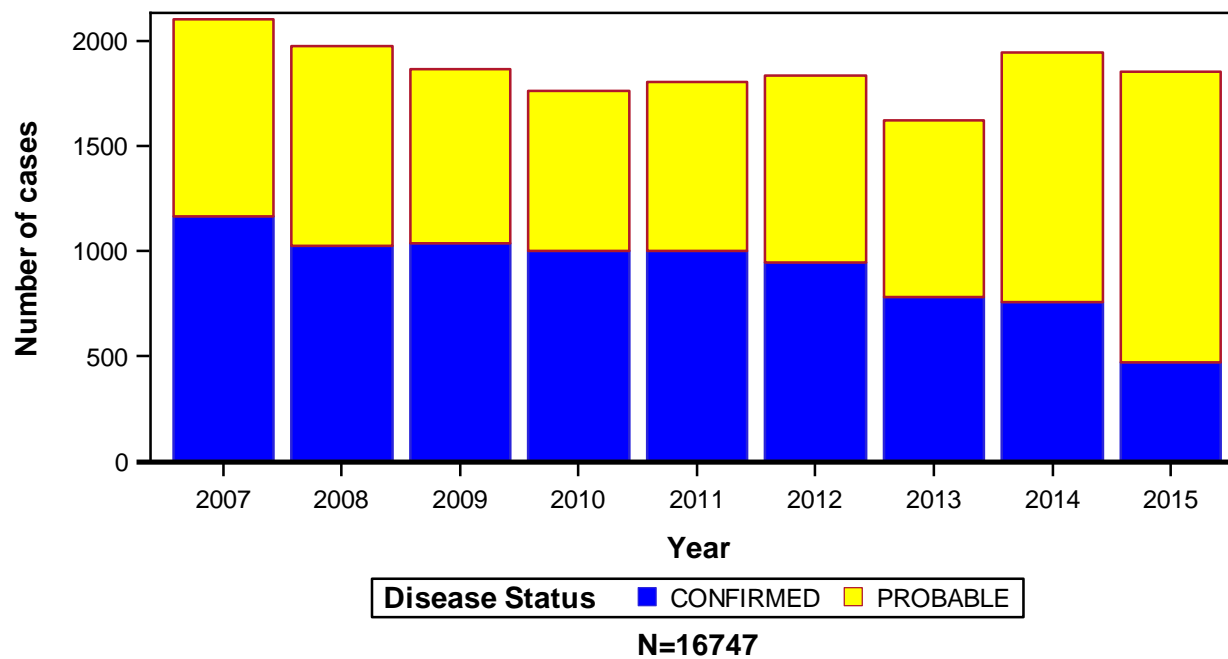
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Number of confirmed and probable chronic HBV cases reported in MA by year, 2007-2015
N=16747

	2007	2008	2009	2010	2011	2012	2013	2014	2015
CONFIRMED	1165	1024	1037	998	1001	942	781	759	471
PROBABLE	937	948	827	759	803	890	839	1186	1380
TOTAL CASES	2102	1972	1864	1757	1804	1832	1620	1945	1851

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Confirmed and probable chronic HBV cases reported in MA by year, 2007-2015



Data are current as of Aug 17, 2016 and are subject to change

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Number and percent of confirmed and probable chronic HBV cases reported in MA by race and year, 2007-2015
N=16747

	2007		2008		2009		2010		2011		2012		2013		2014		2015	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Asian	701	33.35	694	35.19	694	37.23	657	37.39	707	39.19	720	39.30	613	37.84	653	33.57	619	33.44
Black	271	12.89	237	12.02	240	12.88	283	16.11	235	13.03	268	14.63	267	16.48	284	14.60	265	14.32
White	315	14.99	288	14.60	303	16.26	240	13.66	270	14.97	257	14.03	236	14.57	254	13.06	194	10.48
Other	137	6.52	180	9.13	137	7.35	118	6.72	118	6.54	109	5.95	84	5.19	131	6.74	92	4.97
Unknown	678	32.25	573	29.06	490	26.29	459	26.12	474	26.27	478	26.09	420	25.93	623	32.03	681	36.79
TOTAL CASES	2102	100.00	1972	100.00	1864	100.00	1757	100.00	1804	100.00	1832	100.00	1620	100.00	1945	100.00	1851	100.00

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Number and percent of confirmed and probable chronic HBV cases reported in MA by ethnicity and year, 2007-2015
N=16747

	2007		2008		2009		2010		2011		2012		2013		2014		2015	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Hispanic	96	4.57	98	4.97	112	6.01	106	6.03	90	4.99	108	5.90	104	6.42	121	6.22	74	4.00
Non-Hispanic	1006	47.86	957	48.53	904	48.50	888	50.54	932	51.66	902	49.24	839	51.79	953	49.00	854	46.14
Unknown	1000	47.57	917	46.50	848	45.49	763	43.43	782	43.35	822	44.87	677	41.79	871	44.78	923	49.86
TOTAL CASES	2102	100.00	1972	100.00	1864	100.00	1757	100.00	1804	100.00	1832	100.00	1620	100.00	1945	100.00	1851	100.00

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Number of confirmed and probable chronic HBV cases reported in MA by country of birth and year, 2007-2015
N=16747

	2007		2008		2009		2010		2011		2012		2013		2014		2015	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Born in US	149	7.09	228	11.56	205	11.00	164	9.33	173	9.59	174	9.50	163	10.06	134	6.89	110	5.94
Born outside US	678	32.25	847	42.95	859	46.08	802	45.65	838	46.45	799	43.61	735	45.37	746	38.35	661	35.71
Unknown	1275	60.66	897	45.49	800	42.92	791	45.02	793	43.96	859	46.89	722	44.57	1065	54.76	1080	58.35
TOTAL CASES	2102	100.00	1972	100.00	1864	100.00	1757	100.00	1804	100.00	1832	100.00	1620	100.00	1945	100.00	1851	100.00

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**Number and rate per 100,000 population of confirmed and probable chronic HBV cases reported in MA by age group and year
 (when first reported), 2007-2015**
N=16648

Age in years	2007		2008		2009		2010		2011		2012		2013		2014		2015	
	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate	N	Rate
0 to 19	96	5.9	85	5.2	69	4.3	69	4.3	74	4.6	65	4.0	41	2.5	35	2.2	50	3.1
20 to 29	445	48.5	447	48.7	373	40.7	298	32.5	365	39.8	330	36.0	264	28.8	324	35.3	286	31.2
30 to 39	574	69.8	524	63.8	535	65.1	506	61.6	496	60.4	503	61.2	424	51.6	520	63.3	509	61.9
40 to 49	419	42.6	405	41.1	393	39.9	380	38.6	367	37.3	386	39.2	363	36.9	419	42.6	392	39.8
50 to 59	324	34.8	295	31.7	268	28.8	281	30.2	272	29.3	277	29.8	280	30.1	338	36.4	287	30.9
60+	214	16.8	194	15.2	213	16.7	222	17.4	221	17.4	262	20.6	247	19.4	299	23.5	318	25.0

99 cases with missing age were excluded.
 Rate denominators are based on 2010 Census data.

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Number of confirmed and probable chronic HBV cases in females aged 14-44 reported in MA by year, 2007-2015
N=4552

	N	% of cases
2007	591	28.12
2008	573	29.06
2009	541	29.02
2010	476	27.09
2011	505	27.99
2012	496	27.07
2013	419	25.86
2014	495	25.45
2015	456	24.64

164 cases were missing gender or age.

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Number of confirmed and probable chronic HBV cases reported in MA by county and year, 2007-2015
N=16747

	2007	2008	2009	2010	2011	2012	2013	2014	2015
BERKSHIRE COUNTY	23	8	12	6	21	8	9	11	6
BRISTOL COUNTY	77	91	53	55	75	62	57	57	74
CAPE AND ISLANDS	29	22	18	24	25	22	19	15	15
ESSEX COUNTY	168	148	146	126	144	160	136	186	169
FRANKLIN COUNTY	8	2	3	3	7	3	7	6	7
HAMPDEN COUNTY	87	92	113	79	84	86	65	64	70
HAMPSHIRE COUNTY	15	15	13	11	11	14	12	10	14
MIDDLESEX COUNTY	529	474	501	460	437	493	441	511	477
NORFOLK COUNTY	250	224	186	216	236	228	192	263	245
PLYMOUTH COUNTY	63	65	54	69	99	86	67	94	94
SUFFOLK COUNTY	449	383	360	368	357	367	355	406	405
WORCESTER COUNTY	199	200	155	167	149	164	144	148	162
UNKNOWN	205	248	250	173	159	139	116	174	113
TOTAL CASES	2102	1972	1864	1757	1804	1832	1620	1945	1851

The Cape and Islands is comprised of Barnstable, Dukes, and Nantucket Counties.

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Rate per 100,000 population of confirmed and probable HBV cases reported in MA by county and year, 2007-2015
N=15170

	2007	2008	2009	2010	2011	2012	2013	2014	2015
ALL MASSACHUSETTS	29.2	26.4	24.7	24.2	25.1	25.9	23.0	27.3	26.6
BERKSHIRE COUNTY	17.5	6.1	9.1	4.6	16.0	6.1	6.9	8.4	4.6
BRISTOL COUNTY	14.0	16.6	9.7	10.0	13.7	11.3	10.4	10.4	13.5
CAPE AND ISLANDS	12.0	9.1	7.4	9.9	10.3	9.1	7.8	6.2	6.2
ESSEX COUNTY	22.6	19.9	19.6	17.0	19.4	21.5	18.3	25.0	22.7
FRANKLIN COUNTY	11.2	2.8	4.2	4.2	9.8	4.2	9.8	8.4	9.8
HAMPDEN COUNTY	18.8	19.8	24.4	17.0	18.1	18.6	14.0	13.8	15.1
HAMPSHIRE COUNTY	9.5	9.5	8.2	7.0	7.0	8.9	7.6	6.3	8.9
MIDDLESEX COUNTY	35.2	31.5	33.3	30.6	29.1	32.8	29.3	34.0	31.7
NORFOLK COUNTY	37.3	33.4	27.7	32.2	35.2	34.0	28.6	39.2	36.5
PLYMOUTH COUNTY	12.7	13.1	10.9	13.9	20.0	17.4	13.5	19.0	19.0
SUFFOLK COUNTY	62.2	53.0	49.9	51.0	49.4	50.8	49.2	56.2	56.1
WORCESTER COUNTY	24.9	25.0	19.4	20.9	18.7	20.5	18.0	18.5	20.3

Rate denominators are based on 2010 Census data.
The Cape and Islands is comprised of Barnstable, Dukes, and Nantucket Counties.

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**Number of confirmed and suspect acute HBV cases reported in MA by year, 2007-2015
N=1220**

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Acute confirmed	107	63	93	87	77	76	69	33	26
Acute suspect	77	61	43	46	54	51	58	106	93
TOTAL CASES	184	124	136	133	131	127	127	139	119

In 2014, an internal review of the acute HBV case definition led to stricter application of the criteria necessary to confirm a case. A full re-review of confirmed acute and suspect acute cases is planned for the upcoming year. No significant differences were noted between the confirmed acute and suspect acute cases in terms of age or county of residence. (Other variables are collected during the investigation process so would be expected to differ in completeness.)

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Number of confirmed acute HBV cases reported in MA by race and year, 2007-2015
N=631

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Asian	14	10	19	14	10	2	6	6	1
Black	21	8	10	20	10	9	10	3	3
White	48	30	48	36	42	56	40	18	14
Other	12	7	11	8	6	8	6	4	3
Unknown	12	8	5	9	9	1	7	2	5
TOTAL CASES	107	63	93	87	77	76	69	33	26

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Number of confirmed acute HBV cases reported in MA by ethnicity and year, 2007-2015
N=631

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Hispanic	12	10	12	13	8	8	9	6	2
Non-Hispanic	68	38	56	56	47	48	46	22	19
Unknown	27	15	25	18	22	20	14	5	5
TOTAL CASES	107	63	93	87	77	76	69	33	26

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Number of confirmed acute HBV cases reported in MA by country of birth and year, 2007-2015
N=631

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Born in US	27	31	33	36	34	37	38	18	12
Born outside US	25	16	31	31	21	12	14	6	5
Unknown	55	16	29	20	22	27	17	9	9
TOTAL CASES	107	63	93	87	77	76	69	33	26

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Number of confirmed acute HBV cases reported in MA by age group and year, 2007-2015
N=631

Age in years	2007	2008	2009	2010	2011	2012	2013	2014	2015
0 to 19	1	2	2	4	1	1	2	3	.
20 to 29	17	13	15	7	7	4	4	4	4
30 to 39	44	19	27	31	20	18	15	9	8
40 to 49	22	14	17	21	31	18	14	8	4
50 to 59	12	9	19	10	12	17	21	8	6
60+	11	6	13	14	6	18	13	1	4
TOTAL CASES	107	63	93	87	77	76	69	33	26

No confirmed acute cases were missing age information.

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Number of confirmed acute HBV cases reported in MA by county and year, 2007-2015
N=631

	2007	2008	2009	2010	2011	2012	2013	2014	2015
BERKSHIRE COUNTY	2	.	.	1	.	.	1	1	.
BRISTOL COUNTY	8	8	16	14	12	19	5	.	2
CAPE AND ISLANDS	4	4	6	7	1	7	2	2	.
ESSEX COUNTY	8	4	6	10	3	8	4	6	2
FRANKLIN COUNTY	.	1	.	.	1	.	.	.	1
HAMPDEN COUNTY	9	2	9	3	4	3	3	.	1
HAMPSHIRE COUNTY	1	1	.
MIDDLESEX COUNTY	21	18	20	14	14	8	15	9	8
NORFOLK COUNTY	4	6	10	8	9	2	1	2	3
PLYMOUTH COUNTY	4	4	2	4	5	1	7	2	.
SUFFOLK COUNTY	35	12	18	17	17	20	23	5	7
WORCESTER COUNTY	8	4	4	8	11	7	6	5	2
UNKNOWN	3	.	2	1	.	1	2	.	.
TOTAL CASES	107	63	93	87	77	76	69	33	26

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Number of confirmed acute HBV cases reported in MA by reported injection drug use (IDU) history and year, 2007-2015
N=631

	2007	2008	2009	2010	2011	2012	2013	2014	2015
Reported IDU in past	18	2	12	14	11	10	7	7	6
Reported no IDU in past	17	8	16	14	21	21	18	8	12
Unknown	72	53	65	59	45	45	44	18	8
TOTAL CASES	107	63	93	87	77	76	69	33	26